

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

MAILED

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U.S. PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KENJI NAGAI

Appeal No. 2005-2437
Application No. 09/682,642

ON BRIEF

Before OWENS, LEVY, and NAPPI, *Administrative Patent Judges*.
OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal is from a rejection of claims 1, 10-19 and 23-30. Claims 2-9 and 20-22 stand withdrawn from consideration.

THE INVENTION

The appellant claims a rotating electrical machine such as a starter for a motorcycle engine. Claim 16 is illustrative:

16. A rotating electrical machine comprised of an outer housing assembly and a rotor including a rotor shaft journalled therein, said rotor shaft having a drive portion extending outwardly beyond said outer housing assembly for driving relation with another shaft, said outer housing assembly being comprised of a stator shell closed at opposite ends thereof by first and second end caps, said first end cap providing an anti-friction bearing journaling said rotor shaft adjacent said drive portion with said drive portion extending through said first end cap, said first end cap having attachment means for providing a

mounting connection to a body that journals the another shaft, said stator shell carrying a plurality of permanent magnets, said rotor having a plurality of windings cooperating with said permanent magnets, a commutator fixed to said rotor shaft in electrical communication with said rotor windings, fasteners for affixing said end caps to each other and to opposite ends of said stator shell, a brush carrier fixed to said stator shell and carrying brushes cooperating with said commutator, and a plain bearing carried by said second end cap for journaling the end of said rotor shaft spaced from said drive portion.

THE REFERENCES

Kakuda et al. (Kakuda)	4,618,790	Oct. 21, 1986
Isozumi	4,897,571	Jan. 30, 1990
Nagashima et al. (Nagashima)	5,353,658	Oct. 11, 1994
Hefner	5,742,110	Apr. 21, 1998

THE REJECTIONS

The claims stand rejected as follows: claims 1, 10-13, 16 and 17 under 35 U.S.C. § 102(b) as anticipated by Nagashima; claims 14, 15, 18, 19 and 30 under 35 U.S.C. § 103 as obvious over Nagashima in view of Isozumi; claims 23-25 under 35 U.S.C. § 103 as obvious over Nagashima in view of Isozumi and Kakuda;

and claims 26-29 under 35 U.S.C. § 103 as obvious over Nagashima in view of Isozumi, Kakuda and Hefner.^{1,2}

OPINION

We affirm the aforementioned rejections.

The appellant states that the claims stand or fall in the following groups: 1) claims 1, 16 and 17; 2) claims 10 and 11; 3) claims 12 and 13; 4) claims 14 and 18; and 5) claims 15 and 19 (brief, page 3).³ Accordingly, we limit our discussion to one claim in each of these groups, i.e., claims 16, 10, 12, 18 and 19. The appellant states that the claims that are not grouped stand or fall separately. See *id.* The appellant, however, does not argue claims 24 and 25 separately from claim 23, and does not argue claims 26-29 (brief, pages 6-7).

Claims 24-29 therefore stand or fall with claim 23. See *In re*

¹ A rejection of claims 1 and 16 under 35 U.S.C. § 102(b) as anticipated by US 4,665,320 to DeBello is withdrawn in the examiner's answer (page 2).

² The examiner also relies upon US 5,576,588 to Moribayashi et al. and US 4,440,033 to Kurihara (answer, pages 6 and 8. Because those references are not included in the statement of a rejection, they are not properly before us. Accordingly, we have not considered those references in reaching our decision. See *In re Hoch*, 428 F.2d 1341, 1342 n.3, 166 USPQ 406, 407 n.3 (CCPA 1970).

³ Citations to the brief are to the substitute brief filed August 9, 2004.

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Ochiai, 71 F.3d 1565, 1566 n.2, 37 USPQ2d 1127, 1129 n.2 (Fed. Cir. 1995); 37 CFR § 1.192(c)(7)(1997).

Claim 16

Nagashima discloses "a starter in which a pinion gear is selectively meshed with the ring gear of an engine by displacing a pinion shaft for transmitting torque from the motor by using a shift lever which rotates in response to the displacement of an armature of a magnetic switch" (col. 1, lines 5-10).

The appellant argues that Nagashima discloses a roller or needle bearing, not a plain bearing (brief, page 4; reply brief, page 2).

The appellant's claim 16 requires a plain bearing carried by a stator shell's second end cap for journaling the end of a rotor shaft spaced from a drive portion. For the second end cap the examiner relies upon the right end of Nagashima's motor housing to which the numeral 2 is pointing in figure 1 (answer, page 9). That end cap journals the end of the rotor shaft spaced from the drive portion which is the portion on the motor's left side in figure 1. Nagashima does not state that the bearing on the right side is a plain bearing. However, the bearings on the left of the motor are shown as roller bearings, the bearing which the examiner relies upon as being a plain bearing is not shown as a

roller bearing, and the appellant states that the common practice was to use a plain bearing to journal the shaft at the end of a rotor shaft opposite the drive portion (specification, page 1, ¶ 0003). Hence, one of ordinary skill in the art would have interpreted Nagashima's figure 1 as disclosing a plain bearing on the right side of the motor.

The appellant argues that Nagashima's starter motor shaft end 2b is enclosed in the end plate 1a rather than extending through it (brief, page 5).

The appellant's claim 16 requires that the drive portion of a rotor shaft extends through a first end cap. For the first end cap the examiner relies upon the piece extending from the lower left corner of magnetic switch 5 to below the roller bearing on the left side of motor 2 in Nagashima's figure 1 (answer, page 10). Figure 1 shows that the drive portion of the rotor shaft extends through that end cap.

The appellant argues that Nagashima does not disclose any detail as to the structure and mounting arrangement of a commutator and brushes and their carrier (reply brief, page 2).

The appellant's claim 16 requires that a commutator is fixed to a rotor shaft in electrical communication with rotor windings and that a brush carrier is fixed to a stator shell and carries

brushes cooperating with the commutator. Claim 16 does not require that the commutator or brush carrier are fixed directly to, respectively, the rotor shaft and the stator shell. The appellant does not dispute that Nagashima's motor includes a commutator, brushes and a brush carrier (reply brief, page 2). The similarity of the illustration of the appellant's commutator (26, figure 1) and the component of Nagashima's motor immediately to the left of the bearing on the right side of the motor indicates that one of ordinary skill in the art would have considered the component to be a commutator which, like the appellant's commutator, is fixed to the rotor shaft. Because Nagashima's motor is an assembled unit, the brush carrier necessarily is fixed to the stator shell directly or indirectly.

For the above reasons we are not convinced of reversible error in the examiner's rejection of claim 16. Accordingly, we affirm the rejection of claim 16, and claims 1 and 17 that stand or fall therewith.

Claim 10

The appellant argues that it is speculation whether the structure on the right side of Nagashima's figure 1 is a commutator and brush.

The appellant's claim 10 requires that first and second end caps of a stator shell are fixed to each other by threaded fasteners and that the stator shell is sandwiched therebetween. Nagashima's figure 1 shows a threaded fastener at the lower part of the motor housing, and shows that the fastener fixes together the stator shell's two end caps with the stator shell being therebetween. Claim 10, due to its dependence from claim 1, also requires that the commutator is fixed to the rotor shaft at an end thereof spaced from the drive portion of the rotor shaft. As discussed above regarding the rejection of claim 16, one of ordinary skill in the art would have considered the structure to the left of the bearing on the motor's right side in Nagashima's figure 1 to be a commutator. The commutator is at an end of the rotor shaft spaced from the rotor shaft's drive portion which is on the left side of the motor.

We therefore affirm the rejection of claim 10 and claim 11 that stands or falls therewith.

Claim 12

The appellant argues that a distinguishing feature of claim 12 is that the second end cap is affixed to a body that journals another shaft.

Due to its dependence from claim 11, claim 12 also requires that the brush carrier is fixed to the second end cap. As discussed above regarding the rejection of claim 16, one of ordinary skill in the art would have considered the part of Nagashima's motor to the left of the bearing on the right side of the motor to be a commutator. Accordingly, such a person would have considered the portion surrounding the commutator to be the brush carrier. As shown in Nagashima's figure 1, the brush carrier is fixed to the second end cap. The second end cap is connected by the threaded fasteners at the bottom part of the motor housing to the casing to the left of the threaded fasteners. That figure shows that the casing on the left side of the figure journals another shaft.

Hence, we affirm the rejection of claim 12 and claim 13 that stands or falls therewith.

Claim 18

The appellant argues that Isozumi's ribs 21a of resinous bracket 21 have the sole purpose of preventing metal plates 22 from being displaced when fasteners 14 are tightened, and that if the ribs were to provide any strength for the bearing the reference would have said so (brief, page 10).

The appellant's claim 18 requires that a second end cap is formed with stiffening ribs in the area of the plane bearing to minimize distortion loads thereon from threaded fasteners.

Isozumi discloses that metal plates 22 are engaged with ribs 21a of rear bracket 21 so that they may not be displaced when through-bolts 14 are tightened (col. 4, lines 2-4). Isozumi's teachings that "the metal plates **22** are formed by using a plate such as a quenched band steel plate so that they may not be deformed by the axial tensions of the through-bolts **14** when tightened" (col. 4, lines 5-8) and that "the rear bracket **21** is never deformed or bent by the axial tensions of the through-bolts **14**" (col. 5, lines 52-53) would have indicated to one of ordinary skill in the art that distortion loads produced when the fasteners are tightened are being minimized. Hence, the ribs function in minimizing the distortion loads.

We therefore affirm the rejection of claim 18 and claim 14 that stands or falls therewith.

Claim 19

The appellant argues that Nagashima and Isozumi do not disclose a reinforced end plate affixed directly to an engine body (brief, page 6).

Claim 19, which depends from claim 18, requires that a second end cap is formed with a mounting bracket which is affixed to a body that journals another shaft, and that at least some of the stiffening ribs are integral with the mounting bracket. The claim does not require that a reinforced end plate is affixed directly to an engine body. Nagashima's figure 1 shows that the end cap on the right of the motor, which corresponds to the appellant's second end cap, is affixed by the threaded fasteners at the bottom part of the motor to the casing to the left of the motor that journals another shaft. Isozumi's ribs 21a are integral with rear bracket 21 (col. 4, lines 31-33; figure 1). Isozumi would have fairly suggested, to one of ordinary skill in the art, using the rear bracket ribs with Nagashima's motor to provide the disclosed benefit of avoiding displacement when bracket fasteners are tightened (col. 4, lines 2-4).

Hence, we affirm the rejection of claim 19 and claim 15 that stands or falls therewith.

Claim 23

The appellant argues that one of ordinary skill in the art would not have combined Kakuda and Nagashima because Kakuda relates to a totally different type of motor than that of Nagashima (brief, page 6).

The appellant's claim 23, which depends from claim 19, requires that a brush carrier carries a number of brushes all of which are confined in an area that encompasses not greater than 180° around the rotational axis of a rotor shaft. Such a structure is disclosed by Kakuda (col. 3, lines 17-20). Kakuda's teaching that the motor is suitable for use in general industrial machinery and electrical equipment (col. 1, lines 5-11) would have fairly suggested, to one of ordinary skill in the art, using Kakuda's brush structure in Nagashima's motor because Nagashima's starter for internal combustion engines (col. 1, lines 4-5) falls within the scope of Kakuda's general industrial machinery and electrical equipment.

Accordingly, we affirm the rejection of claims 23 and claims 24-29 that stand or fall therewith.

Claim 30

The appellant argues that Isozumi does not disclose a reinforced plate affixed directly to an engine body (brief, page 6).

The appellant's claim 30, which depends from claim 19, requires that the machine comprises a starter motor for starting an internal combustion engine and that the another shaft is a shaft associated with the engine. The claim does not require a

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reinforced end plate affixed directly to an engine body.

Nagashima's starter is for an internal combustion engine (col. 1, lines 4-5), so the shaft that corresponds to the appellant's another shaft is associated with an internal combustion engine.

We therefore affirm the rejection of claim 30.

DECISION

The rejections of claims 1, 10-13, 16 and 17 under 35 U.S.C. § 102(b) as anticipated by Nagashima, claims 14, 15, 18, 19 and 30 under 35 U.S.C. § 103 as obvious over Nagashima in view of Isozumi, claims 23-25 under 35 U.S.C. § 103 as obvious over Nagashima in view of Isozumi and Kakuda, and claims 26-29 under 35 U.S.C. § 103 as obvious over Nagashima in view of Isozumi, Kakuda and Hefner, are affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

Terry J. Owens

TERRY J. OWENS)
Administrative Patent Judge)

Stuart S. Levy

STUART S. LEVY)
Administrative Patent Judge)

Robert Nappi

ROBERT NAPPI)
Administrative Patent Judge)

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